The identity and sources of *Palaeornis anthopeplus* Lear, 1831, and *P. melanura* Lear, 1832 (Regent Parrot), and their neotypification

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SUMMARY.—Evidence from morphology and historical exploration is combined to show that the now-lost type material of the two senior specific names for the Australian Regent Parrot, *anthopeplus* Lear, 1831, and *melanura* Lear, 1832, originally came from south-west Australia. This finding answers 20th century dispute over the type locality, and supports neotypification that had been designated to settle the names on the south-western subspecies.

Endemic to Australia, the brilliant mustard-yellow Regent Parrot *Polytelis anthopeplus* (Lear, 1831), occurs in two widely separated isolates in the south-west and inland south-east of the continent. It was named *Palaeornis anthopeplus* by Edward Lear from a single figure in feminine plumage in pt. 8, October 1831, of his (1830–32) *Illustrations of the family of Psittacidae, or parrots*. In that work he later published another single figure of the much brighter, black-tailed adult male as a different species, *Palaeornis melanura* (pt. 12, 1832). Neither figure was accompanied by a reference to its geographic source, nor a designation as type; and the individual specimens on which the plates were based are currently presumed lost (Schodde 1993). Until a review of geographic variation (Schodde 1993), differences between eastern and western isolates had attracted little attention. Peters (1937) and Forshaw (1969, 1974) recognised none. Later, when Forshaw (1981: 158) accepted the isolates as separate subspecies, following Mathews (1915) and Condon (1975), he did so with stated reluctance.

When separating the isolates, Mathews (1915) described the western as new (*westralis*) because he had previously 'restricted' the type locality of both *anthopeplus* and *melanura* to 'New South Wales' in the east (Mathews 1912a). Even though made arbitrarily and without explanation, this restriction was accepted unquestioningly until 1993. The procedure nevertheless is not recognised by the *International code of zoological nomenclature*, hereafter 'the Code' (ICZN 1985, 1999), and is to be corrected if shown to be 'erroneous' (Recommendations 72H (b) and 76A.2 respectively). This was the course that I took in my revision of the Regent Parrot in 1993, concluding from the tones of Lear's figures of *anthopeplus* and *melanura* and historical circumstances, that the types of these names came from south-west Australia, not the east (Schodde 1993). Accordingly, neotypes were designated to establish the point; and the eastern isolate, un-named as a consequence, was described as the new subspecies, *monarchoides*. *Prima facie* grounds for neotypification under Art. 75 of the Code (ICZN 1985, 1999) were the loss of original type material and the conflicting type localities for *anthopeplus* and *melanura* which confuse application of the names. Exacerbating that confusion, Mees (2004) then defended Mathews' designation of 'New South Wales' as the type locality for *anthopeplus*, arguing that I had shifted it to south-west Australia on insufficient grounds and erred by designating neotypes illegally. Thus the purpose of this paper is to establish as far as possible the identity and source of the material in Lear's original figures. To do this I have compared further specimen material with information in original literature and the facts of early exploration in Australia.

The issue hinges on evidence for the type locality of *anthopeplus* and *melanura*. Using only secondary references, Mees (2004) challenged my conclusions (Schodde 1993) on the following grounds: (i) Mathews (1912a, 1915) found that Lear's plate of *anthopeplus* 'did not show subspecific characters either way', (ii) I agreed with this view, and (iii) I conceded that early, pre-1832 'specimens from *eastern* Australia (italics mine) could have been received (by Lear) through trade channels, such as the famous firm Leadbeater'. Here Mees misread both Mathews' and my accounts. I can find no evidence that Mathews ever commented on the subspecific identity of Lear's figures of *anthopeplus* and *melanura*; certainly there is nothing in any of the references mentioned by Mees. Nor did I agree with Mathews on the characters of Lear's plate of *anthopeplus*: Mathews never published on the subject. As for the supposition that material of Regent Parrots could have reached Lear from eastern Australia, this too I neither stated nor implied. More crucially, Mees clouded the issue by misreading his quotation from my study (Schodde 1993). I wrote: 'Lear's (1830–2) superb figures of *Palaeornis anthopeplus* and *P. melanura*, nevertheless, also match the western form'. Here Mees took the word 'also' to imply that Lear's figures agreed with the eastern as well, whereas its context in the paragraph does quite the opposite, reinforcing instead the point that the figures match the western form alone.

The fact is that Mathews' (1912a) restriction of the type localities of *anthopeplus* and *melanura*, made in his first sketchy and unreferenced listing of type localities for Australian birds, itself undermines the case for 'New South Wales'. Mathews rarely concerned himself deeply with tracking down type localities for pre-Gouldian names, routinely restricting them to 'New South Wales': that was the region where British colonisation of Australia began and the source of most Australian specimens in the first decades of the 19th century. In the case of *anthopeplus* and *melanura*, moreover, he was constrained by a lapse, recording the geographic range of the Regent Parrot as 'New South Wales, Victoria, South Australia' and omitting south-west Australia (Mathews 1912a). Thus the assigned type locality 'New South Wales' for these names was not based on rational choice between south-west and south-east Australia, but on a faulty *ad hoc* notion of species distribution. Even as a guess it was flawed.

Real evidence for the geographic origin of Lear's material of *anthopeplus* and *melanura* comes from three sources. One is the identity of the figures in Lear's plates. Collections not previously available to me from south-west Australia (n=14 ♂♂, 6 ♀♀ in the American Museum of Natural History and Australian National Wildlife Collection), including fresh adult female material, reveal that one of the most trenchant morphological differences between western and eastern isolates is the body tone of feminine plumage. It is a difference so far little stressed in literature. Western females and immatures are mid olive-green often but not always washed with a dulling grey, whereas eastern females and immatures are much brighter citrine-green with a distinct yellowish cast, particularly on the face and rump /uppertail-coverts. Even though shown only side-on, the tones of these areas of plumage in Lear's plate of *anthopeplus* are clearly greenish and greyish olive respectively. Adult western males are similarly, though less markedly, duller than the bright mustard of yellow eastern males, the dusky olive tone of their backs often washing well up onto the head. The sexual difference in body tone between adult males and females / immatures, moreover, is noticeably greater in south-west Australia. With the same yellow cast, eastern females and immatures are merely duller than adult males, whereas western females and immatures are much greener than their males. Here, despite his tendency to brighten colours in the birds he painted, Lear's life-like figures of both *anthopeplus* and *melanura* match the plumage tones and sex / age contrasts of the western, *not* eastern form, corroborating my earlier assessment (Schodde 1993, 1997).

The second piece of evidence comes from the circumstances of early ornithological exploration in Australia up to 1831–32 when *anthopeplus* and *melanura* were described (Mathews 1912b). By then, the range of the Regent Parrot in the south-west had been penetrated by the garrisoning of King George Sound (Albany) from 1826 and settlement along the Swan River in 1829–31 (*The encyclopaedia of Australia* 1983: Western Australia). There Regent Parrots were found by John Gilbert only a decade later (Gould 1845). It is from these sources that Lear got material for his folio of other south-west Australian parrots: *Calyptorhynchus baudinii* Lear, *Platycercus stanleyii* Vigors = *P. icterotis icterotis* (Kuhl), *Platycercus pileatus* Vigors = *Purpureicephalus spurius* (Kuhl) and *Platycercus baueri* Lear = *Barnardius zonarius semitorquatus* (Kuhl). In contrast, the range of the eastern Regent Parrot in the inland Murray mallee was, with the exception of a single venture, ornithological *terra incognita* until 1836 when Surveyor-General Thomas Mitchell reached the junction of the Murray and Darling Rivers (*The encyclopaedia of Australia* 1983: Exploration by Land). Earlier access was simply not possible. At 800 km from Sydney, 500 km from Melbourne and *c.*200 km from Adelaide, this region could only be approached at that time by large, well-equipped expeditions supplied from those centres. Melbourne, apart from failed and under-resourced penal settlements at Sorrento in 1803–04 and Western Port in 1826–28, was not established until 1835 (*The encyclopaedia of Australia* 1983: Victoria). Adelaide only followed a year later. And, until Mitchell's expedition, Sydney was too far away, across not only the Blue Mountains but also the inhospitable Hay Plains.

The single exceptional venture was Charles Sturt's voyage down the Murrumbidgee and Murray rivers in 1830. By remarkable coincidence, Sturt did collect Regent Parrots, as I reported (Schodde 1993), preparing as skins a pair of 'Yellow King Parrots' out of a dozen or so shot (Sturt 1834, pl. opp. p. 191, Stenhouse 1830). Yet, whereas material from Sturt's more northerly expedition to the upper Darling River a year before could have reached London, including perhaps the type of *Cacatua leadbeateri* (Vigors), the skins from the Murray-Murrumbidgee expedition were passed to Sturt's commanding officer in Sydney, Lt.-Colonel Patrick Lindsay; and Lindsay sent them directly to Robert Jameson, professor of natural history at the University Museum in Edinburgh in late 1830 (Stenhouse 1830, Whittell 1954: 97). One specimen, the female, still survives. Lear, who then worked in London on material from the Australian colonies provided instead by the Zoological Society of London at Regent's Park, Lord Stanley, N. A. Vigors, and the natural history dealers B. & J. Leadbeater (Hyman 1980: 20–22, Tree 1991: 38), would not have seen them; he apparently never visited Edinburgh, and certainly not before the end of 1832. Thus, in the absence of connection between Sturt's specimens and Lear's lost material of *anthopeplus* and *melanura*, the source of the latter can only be south-west Australia.

The third piece of evidence comes from the discovery of the *possible* holotype of *Palaeornis anthopeplus* Lear in the World Museum, Liverpool. It is labelled as a female, WML no. 3577, in the collection of Lord Stanley, 13th Earl of Derby, from the London traders B. & J. Leadbeater, but it lacks further data (C. T. Fisher pers. comm.). Lear had access to Stanley's collections for his work on parrots (Tree 1991: 49). Yet however likely it is that this was the specimen of *anthopeplus* illustrated by him, there is no explicit reference to Lear on its label or in the World Museum register. Nor is there clear evidence that this specimen was in Lord Stanley's or the Leadbeaters' possession by mid 1831 when Lear painted *anthopeplus* (C. T. Fisher pers. comm.). Even so, the skin has wings and tail worn in the way of a captive live bird, the very subject that Lear preferred to illustrate, and it bears several remarkable similarities to the original figure of *anthopeplus*: (i) the same shoulder pattern with extensively hidden pale green wing-coverts and broad blue-black outer margining, (ii) the same dull rump, and (iii) the same wash of green across forehead and face contrasting

with a quite dusky olive back. Its tail, though shorter, has evidently been broken, leaving its moderately demarcated dark greyish-olive breast as the only anomaly. Although the specimen is unprovenanced, its generally olive body tone and dull rump identify it with the south-west Australian form. This is further evidence that, whether type material or not, specimens of Regent Parrots available in London around Lear's time came from that region. Even the female figured 14 years later by Gould (1845) in his *The birds of Australia* is visibly of the south-western form, no doubt collected by John Gilbert. The British Museum of Natural History in London did receive early material of the eastern form from Charles Sturt and Sir George Grey, but not until the early–mid 1840s from their periods as respective Assistant Commissioner of Lands (Surveys) and Governor in South Australia (*cf.* Salvadori 1891: 480).

So comprehensive is the combined evidence for a south-west Australian source for Lear's material that one could well ask whether there is any point to neotypification. Yet, without firm evidence that WML 3577 in Liverpool is original type material, a *prima facie* case still exists for neotypification of both *Palaeornis anthopeplus* Lear and *P. melanura* Lear under the Code (ICZN 1999). It is a case strengthened by Mees' (2004) challenge. Had the type localities of *anthopeplus* and *melanura* been shifted to south-west Australia on more questionable grounds, his charges would have substance. But as the grounds are circumstantially sound, the charges lose force. Thus neotypification is the outcome of work that was, as Mees (2004) himself admitted, revisory, which supercedes Mees' claim that the designation was illegal, made as an end in itself (Art. 75.2). It also satisfies the critical conditions of Art. 75.3.1, namely, that its express purpose is to resolve complex and contradictory problems by clarifying the taxonomic status or type locality of nominal taxa. Even the most casual reader will appreciate that this requirement is met due to the dispute over type localities. As for the issue of stability raised by Mees (2004), it can be well argued that eastern and western subspecies of the Regent Parrot were recognised so infrequently and with such little confidence until 1993 that neotypification reflecting the realities of type source then outweighed any drawbacks from shifting the name *anthopeplus* from eastern to western isolates. This view has since gained widespread acceptance, the shift having been adopted widely in international (Collar 1997, Juniper & Parr 1998, Dickinson 2003) as well as national Australian (Schodde 1997, Higgins 1999, Forshaw 2002, Sindel & Gill 2003) literature. Today usage is such that reverting to pre-neotypification nomenclature based on the old erroneous type localities of Mathews would have the very destabilising effect that the Code seeks to avoid.

Until WML 3577 can be confirmed as original type material, neotypification of *Palaeornis anthopeplus* Lear and *P. melanura* Lear (Schodde 1993) should continue to stand because: (i) it fulfills all qualifying conditions required for neotypification by both the third (Art. 75 (b) and (d)) and fourth (Art. 75.3) editions of the Code (ICZN 1985, 1999), and (ii) it settles and protects nomenclature now in widespread use. Although, under Art. 86.3 (ICZN 1999), only conditions for neotypification under the current edition of the Code need to be satisfied, I have quoted the equivalent requirements in the previous edition as well because it was that edition under which neotypification was originally effected and later challenged (Mees 2004). If it is subsequently shown that WML 3577 is the holotype of *anthopeplus* Lear, no further name shifting will result because that specimen is of the south-west Australian subspecies.

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